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<td>cHyb_FilmPulseRate</td>
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<td>cHyb_SerTranComms</td>
<td>- /stat</td>
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<td>Setup: Parallel Remote</td>
<td></td>
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<td>PARALLEL RECORD MODE</td>
<td>cHyb_ParaRecMode</td>
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<td>EDITOR CHASE SOURCE</td>
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<td>cmd/stat</td>
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<td>1 BYTE</td>
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1 INTRODUCTION

There are 2 message types:

- Command (writes information fields)
- Status (return of information field data)

All internal data is considered as being stored in “information fields” (abbr. i/f). Each i/f is designated as either “cmd/stat”, “-/stat” or “cmd/-”.

CONVENTIONS

1. All numeric quantities in this text should be assumed to be hexadecimal, unless otherwise noted.
2. All bit fields will be shown with the most significant bit first.
3. Multi-byte data values are transmitted in BIG-ENDIAN mode (msb first), for compatibility with MMC.

COMMUNICATIONS MESSAGE FORMAT

Messages Embedded in Sony Protocol

Commands:

<cmd1=0xe | dataCount>  <i/f token>  <data......>  <Sony cksm>

Status:

<cmd1=0xf | dataCount>  <i/f token>  <data......>  <Sony cksm>

Notes:

1. Messages with data field byte counts (dataCount) greater than 15 are not supported.
2. dataCount is the length of the data field only, and does not include the token.
3. Sony cksm adds a maximum of 17 bytes from the cmd1 byte to immediately before the checksum.

Messages Embedded in MIDI Protocol

[TBD]

NOTE

This document will eventually list the actual token values for the various commands and information fields. In the meantime, most tokens are indicated as "xx", or some number which may or may not be accurate.

For actual values, refer to HybExt.hpp and use the enum values cHyb_... listed in the index at the top of this document.
2 STANDARD SPECIFICATIONS

STANDARD TIME CODE:

\[ ii \ hh \ mm \ ss \ ff \ xx \ tt \]

\( ii = \) Index, used for timecode arrays (TRACK SLIP OFFSET and MEMORY)
\( hh = \) BCD hours [00 thru 23]
\( mm = \) BCD minutes [00 thru 59]
\( ss = \) BCD seconds [00 thru 59]
\( ff = \) BCD frames [00 thru 29]
\( xx = \) BCD subframes [00 thru 99]
\( tt = \) flags: \( \text{shzxaaaa} \)

aaaaa = timecode rate and type (FpsTct):
0 = 30 non-drop \( [\text{cFpsTct_30ndf}] \)
1 = 30 drop \( [\text{cFpsTct_30df}] \)
2 = 25 \( [\text{cFpsTct_25}] \)
3 = 24 \( [\text{cFpsTct_24}] \)
4 = 29 non-drop \( [\text{cFpsTct_29ndf}] \)
5 = 29 drop \( [\text{cFpsTct_29df}] \)
6 thru 0xd = reserved
0xe = use Master setting \( [\text{cFpsTct_UseMaster}] \)
0xf = use Global setting \( [\text{cFpsTct_UseGlobal}] \)

x = subframe display flag:
0 = subframes off
1 = subframes on

z = Zero Adjust flag
0 = no adjustment
1 = displayed value to be adjusted by LOCAL ZERO value

h = 12 hour display flag:
0 = display timecode in 0~24 hour range (default)
1 = display timecode in +/-12 hour range

s = sign:
0 = positive time code
1 = negative

STANDARD SAMPLE NUMBER:

\[ s1 \ s2 \ s3 \ s4 \ s5 \]

40-bit sample number in BIG-ENDIAN order.

STANDARD VELOCITY:

Velocity is represented by the direction and number of samples to be interpolated within the period of one “slab” of the master slab clock. Since there are 1024 samples in a slab, playspeed is encoded as +1024. Reverse play is -1024. It may also be thought of as a signed 6-bit integer plus 10-bit fraction which measures velocity relative to playspeed.

\[ v1 \ v2 \]

Signed 16-bit speed value in BIG-ENDIAN order (i.e. msb arrives first).
Playspeed = +1024, or 0x0400.
STANDARD TRACK BITMAP:

This variable length field contains a single bit for each audio or video "track" supported by the Controlled Device. A bit value of 1 indicates an active state, while 0 indicates an inactive state. All unused or reserved bits must be reset to 0. The Standard Track Bitmap is currently used by the Information Fields TRACK RECORD READY, TRACK RECORD STATUS, TRACK INPUT MONITOR and TRACK INPUT STATUS.

When sent as Status, the Controlled Device need transmit only as many bytes of the Standard Track Bitmap as are required. Any track not included in a Status transmission will be assumed to be inactive, with its bit reset to zero. A message byte count of 01 (dataLen = 0) may be used if all tracks are inactive. When written to, tracks not included in the transmission will have their individual bits reset to zero (track inactive). A message byte count of 01 (dataLen = 0) may be used if all tracks are to be reset.

\[ r0 \ r1 \ r2 \ldots \]

- Bitmap 0: hgfedcba
  - a = Video
  - b = 0
  - c = Time Code
  - d = Aux A ???
  - e = Aux B ???
  - f = 0
  - g = 0
  - h = 0

- Bitmap 1: ponmlkji
  - i = Track 1
  - j = Track 2
  - k = Track 3
  - l = Track 4
  - m = Track 5
  - n = Track 6
  - o = Track 7
  - p = Track 8

- Bitmap 2: Tracks 9-16

- Bitmap 3: Tracks 17-24

- Bitmap 4: Tracks 25-32

- Bitmap 5: Tracks 33-40

- Bitmap 6: Tracks 41-48

- Bitmap 7: Tracks 49-56

- Bitmap 8: Tracks 57-64

\[ \ldots \]

\[ \ldots \]
3 DETAILED INFORMATION FIELD DESCRIPTIONS

Time Code

01 MMR TIME CODE [cmd/stat]
Contains the time code normally used to reference the Controlled Device's current position.
(distribute on CAN bus when CAN master???)

01 MMR TIME CODE
00 Index/subtype unused.
<.....> Standard Time Specification

02 MASTER TIME CODE [-/stat]
Contains the time value of the time code relative to which all synchronization operations are to take place.
According to the CONTROL MODE and Lynx and CAN Bus information fields, data in this register may be
taken from the hardware timecode reader, the biphase reader, the RS-422 transport control port, the CAN bus
(another MMR being the master), or the Lynx bus (an external Lynx being the master). There is currently no
separate indication of the source of the timecode data.

02 MASTER TIME CODE
00 Index/subtype unused.
<.....> Standard Time Specification

03 REQUESTED OFFSET [cmd/stat]
Contains the desired time offset between the MMR TIME CODE and the MASTER TIME CODE for use when
in chase mode, and is defined as follows:
REQUESTED OFFSET = MMR TIME CODE - MASTER TIME CODE
This offset represents the desired difference in frames between the master and slave positions, and need not be
expressed as a non-drop-frame number.
REQUESTED OFFSET may be expressed in any positive or negative range. Devices will interpret an offset of
+23:00:00:00.00, for example, as being equivalent to one of -01:00:00:00.00.

03 REQUESTED OFFSET
00 Index/subtype unused.
<.....> Standard Time Specification

xx OFFSET DELTA [cmd/-] 
Writing to this register causes the written time value to be added to the REQUESTED OFFSET. Value will be
positive or negative. This field may not be read as status.

xx OFFSET DELTA
00 Index/subtype unused.
<.....> Standard Time Specification
**LYNX SYNC POINT** [cmd/stat]

Writing this register causes automatic calculation of REQUESTED OFFSET, relative to the current master sync point (maintained elsewhere, and not visible). Only active when connected to the Lynx Bus.

```
xx LYNX SYNC POINT
00 Index/subtype unused.
<...> Standard Time Specification
```
09 IN POINT [cmd/stat]
Contains the target time code for looped record and rehearse commands.
Always re-calculates IN POINT SAMPLES when written.

```
09 IN POINT
00 Index/subtype unused.
<.....> Standard Time Specification
```

0A OUT POINT [cmd/stat]
Contains the target time code for the looped exit command.
Always re-calculates OUT POINT SAMPLES when written.

```
0A OUT POINT
00 Index/subtype unused.
<.....> Standard Time Specification
```

10 PRE ROLL [cmd/stat]

```
xx PRE ROLL
00 Index/subtype unused.
<.....> Standard Time Specification
```

11 POST ROLL [cmd/stat]

```
xx POST ROLL
00 Index/subtype unused.
<.....> Standard Time Specification
```

12 START POINT [-/stat]
Integer hour timecode point which is closest to the leading edge of the first edit from any track.

```
xx START POINT
00 Index/subtype unused.
<.....> Standard Time Specification
```

13 END POINT [-/stat]
Location of trailing edge of last edit from any track, plus 2 seconds.

```
xx END POINT
00 Index/subtype unused.
<.....> Standard Time Specification
```
16 LOOP START [cmd/stat]

  xx   LOOP START
  00   Index/subtype unused.
  <.....> Standard Time Specification

17 LOOP END [cmd/stat]

  xx   LOOP END
  00   Index/subtype unused.
  <.....> Standard Time Specification

xx NEXT EDIT [cmd/stat]
When read, contains the timecode value at which the most recently calculated “next” edit point occurs. Writing this field as a command will not result in the command timecode being placed in the field, but will cause a calculation which leaves the field containing the timecode of the closest edit point following the command timecode value. Calculation parameters are taken from the fields TRACK NEXT/PREV SELECT and NEXT/PREV MODE.

  xx   NEXT EDIT
  00   Index/subtype unused.
  <.....> Standard Time Specification

xx PREVIOUS EDIT [cmd/stat]
When read, contains the timecode value at which the most recently calculated “prev” edit point occurs. Writing this field as a command will not result in the command timecode being placed in the field, but will cause a calculation which leaves the field containing the timecode of the closest edit point prior to the command timecode value. Calculation parameters are taken from the fields TRACK NEXT/PREV SELECT and NEXT/PREV MODE.

  xx   PREVIOUS EDIT
  00   Index/subtype unused.
  <.....> Standard Time Specification

18 LOCAL ZERO [cmd/stat]
Reference point in MMR TIME CODE at which the feet and frames display will be zero. Does not affect timecode itself.

  xx   LOCAL ZERO
  00   Index/subtype unused.
  <.....> Standard Time Specification
Contains a timecode value indicating the amount of time (i.e. disk space) which is available for recording, given the current MMR TIME CODE position, the current TRACK RECORD READY status, and the current setting of the RECORD DESTRUCTIVE field.

EDIT SLIP DELTA COMMAND [cmd/ -]
This is an edit command. Writing to this register causes the material between the IN POINT and OUT POINT on the currently selected edit tracks to be moved by the amount of time specified (equivalent to a Clear and Paste). The operation does not affect the clipboard, and may be undone with a single UNDO command. The time code value may be positive or negative. This field may not be read as status.

TAPE MODE START [cmd/stat]
Time used during Tape Mode to determine the nominal start time of any new track. Actual track start time is TAPE MODE START – TAPE MODE LEADER

TAPE MODE LEADER [cmd/stat]
Time used during Tape Mode to determine the pre-start interval. Actual track start time is TAPE MODE START – TAPE MODE LEADER

Establishes a maximum total time for a tape mode project. Punching into record beyond the specified length will be prohibited.

TAPE PROJECT LENGTH [cmd/stat]
TRANSPORT COMMAND WITH TIMECODE  [cmd/-]
Enters transport commands into a deferred queue for execution at the specified timecode.

<cmd>  Index/subtype = TRANSPORT COMMAND [see definitions below]
Currently supported commands:
PLAY (usually used in place of EXIT)
EXIT
RECORD
RECORD IF PLAY
REHEARSE
REHEARSE IF PLAY
STROBE

Standard Time Specification

Transport Commands and Tallies

TRANSPORT COMMAND  [cmd/-]
All “motion” and edit controls. Tallied in the CONTROL TALLY i/f.

MOTION CONTROL STATE (MCS) COMMANDS
Basic transport commands such as PLAY, STOP, FAST FORWARD and REWIND will each move
the Controlled Device to a new and mutually exclusive motion state. These commands are therefore
collectively labelled as the "Motion Control State" commands. Each MCS command causes a
transition into a new transport state and cancels the previous Motion Control State.
Receipt of a directly issued MCS command will also automatically terminate an active Motion Control
Process (MCP) or Loop Command, as described below (except for the PLAY and REVERSE PLAY
commands when received during a LOCATE MCP).
MCS commands may be either:
(i) directly issued by this command set,
or (ii) indirectly issued as steps in the execution of a Motion Control Process (see below).
Motion Control State activity is tallied in the "Most recently activated Motion Control State" (ms) byte
of the TRANSPORT TALLY Information Field. The device’s success in achieving the requested state
is tallied in the same field, in the “MCS Online and Idle Status” (ss) byte.

01 STOP
Stop as soon as possible. STOP will be cancelled by the receipt of another MCS or
MCP command.
Recording [rehearsing] tracks exit record [rehearse]. Velocity i/f is reset to
zero.

02 PLAY
Enter playback mode, with the exception that if the device is currently executing a
MCP:LOCATE, then PLAY mode will not be invoked until the LOCATE is
completed.
Receipt of any other MCS or MCP command will cancel PLAY.
When received while a LOCATE is in progress, the "MCP Status" field of the
TRANSPORT TALLY Information Field will be set to indicate "Locate with
Deferred Play pending" for the duration of the LOCATE. When the LOCATE has concluded:
(i) An automatic MCS:PLAY command will be issued;
(ii) The TRANSPORT TALLY "Most recently activated Motion Control State" byte will switch to "PLAY";
(iii) The TRANSPORT TALLY "MCP Status" byte will clear the "Locate with Deferred Play pending" bit.

Recording [rehearsing] tracks exit from record [rehearse]. Velocity i/f is reset to zero.

03 REVERSE PLAY
Enter reverse playback mode, with the exception that if the device is currently executing a MCP:LOCATE, then REVERSE PLAY mode will not be invoked until the LOCATE is completed.
REVERSE PLAY will be cancelled by the receipt of another MCS or MCP command.
When received while a LOCATE is in progress, the "MCP Status" field of the TRANSPORT TALLY Information Field will be set to indicate "Locate with Deferred Reverse Play pending" for the duration of the LOCATE. When the LOCATE has concluded:
(i) An automatic MCS:REVERSE PLAY command will be issued;
(ii) The TRANSPORT TALLY "Most recently activated Motion Control State" byte will switch to "REVERSE PLAY";
(iii) The TRANSPORT TALLY "MCP Status" byte will clear the "Locate with Deferred Reverse Play pending" bit.
Recording [rehearsing] tracks exit from record [rehearse] upon receipt of the REVERSE PLAY command. Velocity i/f is reset to zero.

04 FAST FORWARD
Move forward at maximum possible speed. FAST FORWARD will be cancelled by the receipt of another MCS or MCP command. Recording [rehearsing] tracks exit from record [rehearse]. Velocity i/f is reset to zero.

05 REWIND
Move in reverse direction at maximum possible speed. REWIND will be cancelled by the receipt of another MCS or MCP command. Recording [rehearsing] tracks exit from record [rehearse]. Velocity i/f is reset to zero.

06 SHUTTLE
Causes the Controlled Device to travel at direction and velocity specified by the VELOCITY COMMAND i/f. SHUTTLE will be cancelled by the receipt of another MCS or MCP command. Recording [rehearsing] tracks exit from record [rehearse].

08 STOP IF INTERNAL JOG/SHUTTLE
Identical to STOP, but only effective if the current MCS is INTERNAL JOG or SHUTTLE. Typically used when the control wheel is required for setup or data trim modes.

0B INTERNAL SHUTTLE
Identical to standard SHUTTLE command with the exception that speed information is generated by a direct link between front panel hardware and the SYNC-2 card. The VELOCITY COMMAND field is therefore ignored while executing this command.
**0C INTERNAL JOG**

Identical to standard JOG command with the exception that speed information is generated by a direct link between front panel hardware and the SYNC-2 card. The VELOCITY COMMAND field is therefore ignored while executing this command.

**MOTION CONTROL PROCESS (MCP) COMMANDS**

Motion Control Processes are overriding control commands that cause the Controlled Device to automatically issue its own Motion Control State commands to achieve the desired result.

Motion Control Processes are mutually exclusive and are commanded by MCP commands. Receipt of an MCP command will override any previously received MCS command.

Motion Control Process activities are tallied in the "Most recently activated Motion Control Process" (mp) byte of the TRANSPORT TALLY Information Field. The device's success in executing the requested process is tallied in the same field, in the "MCP Status " (ps) byte.

In addition, during a Motion Control Process, each automatically activated Motion Control State will be registered in the TRANSPORT TALLY Information Field in the manner described in the previous section.

**11 LOCATE**

Causes the Controlled Device to move to the time code position specified by the LOCATE POINT field, in accordance with the MMR TIME CODE.

With the exception of the MCS:PLAY and MCS:REVERSE PLAY commands, LOCATE will be cancelled by the receipt of any other MCS or MCP command.

**LOOP COMMANDS**

Loop processes are high-level overriding control commands that cause the Controlled Device to automatically issue its own Motion Control Process and Motion Control State commands to achieve the desired result.

Loop commands are mutually exclusive.

Receipt of a Loop command will override any previously received MCP or MCS command.

Loop activities are tallied in the "Most recently activated Loop command" (lc) byte of the TRANSPORT TALLY Information Field.

In addition, during a Loop process, each automatically activated Motion Control Process and Motion Control State will be registered in the TRANSPORT TALLY Information Field in the manner described in the previous sections.

Note: Changes to the LOOP START and/or LOOP END fields will be recognized during the execution of the Loop commands.

**20 LOOP PLAY**

Causes the Controlled Device to:

(a) Invoke the MCP LOCATE command to locate immediately to the LOOP START point minus the PRE ROLL value, if not already there

(b) Enter Play mode

(c) Continue until reaching the LOOP END point plus the POST ROLL value, at which time it should re-locate back to the LOOP START + PRE ROLL point.

(d) If the LOOP MODE field indicates “Repeat” mode, then go to (b).

**21 LOOP RECORD**

Same as LOOP PLAY, except punch into record at the LOOP START point and punch out of record at the LOOP END point.

If the LOOP RECORD MODE field indicates “Record Once”, then recording will occur during the first pass only, with subsequent passes being Play only.

When this command is received, LOOP START and LOOP END are transferred to IN POINT and OUT POINT respectively.
22 LOOP REHEARSE
Same as LOOP RECORD, except uses rehearse mode, and the LOOP RECORD MODE field does not apply here.
When this command is received, LOOP START and LOOP END are transferred to IN POINT and OUT POINT respectively.

23 LOOP C-LOOP
Causes the Controlled Device to:
(a) Invoke the MCP LOCATE command to locate immediately to the LOOP START point minus the PRE ROLL value, if not already there
(b) Enter Play mode
(c) Continue until reaching the LOOP END point plus the POST ROLL value, at which time it should REVERSE PLAY back to the LOOP START + PRE ROLL point.
(d) If the LOOP MODE field indicates “Repeat” mode, then go to (b).

xx LOOP PREROLL
Invokes the MCP LOCATE command to locate immediately to the LOOP START point minus the PRE ROLL value, if not already there.

EDIT COMMANDS
All recording and rehearsing. Tallied in the TRANSPORT TALLY i/f.

30 EXIT
Causes a record [rehearse] exit on all currently recording tracks.

34 RECORD
Operational only if the TRANSPORT TALLY field “Most Recent Record/Rehearse Activity” is not “ALL SAFE ON”.
Switches the Controlled Device into record according to the setting of the TRACK RECORD READY i/f. EDIT:RECORD will be honored under two MCS conditions only:

CONDITION 1: Controlled Device already Playing:
If the Controlled Device is already playing (i.e. the "Most recently activated Motion Control State" in the TRANSPORT TALLY Information Field is PLAY), then EDIT:RECORD will cause record entry on all tracks which are presently in a record ready state. *1*8*9

CONDITION 2: Controlled Device Stopped:
If, when EDIT:RECORD is received, the Controlled Device is completely stopped as a result of an explicit STOP command (i.e., [i] the "Most recently activated Motion Control State" in the TRANSPORT TALLY Information Field is STOP; and [ii] the "Most recently activated Motion Control Process" byte is set to "No MCP's currently active"), then:
(i) An automatic MCS:PLAY command will be issued; *3
(ii) At an appropriate point in the start up phase of the device, record entry will occur on all tracks which are presently in a record ready state. *1*5
NOTES:

*1. Tracks are switched in and out of the record ready state using the TRACK RECORD READY Information Field.
2. No recording [rehearsing] will take place following an EDIT:RECORD command unless at least one track is in a record ready state.
*3. Under CONDITION 2, an automatic MCS:PLAY command will be issued only under the STOP conditions specified. At no other time does EDIT:RECORD have any implications regarding play mode or playing speed.
7. A Controlled Device will ignore any EDIT:RECORD command which is received while it is neither already in play mode nor completely stopped as described.
*8. Under CONDITION 1, “Controlled Device already Playing”, it is not necessary for the PLAY command to have been “successful” before EDIT:RECORD is accepted. If, however, the desired play motion has not yet been achieved when EDIT:RECORD is received, it may be necessary for the device to defer the onset of recording until an appropriate point in its start up phase.
*9. Note also that, under CONDITION 1, recording is not inhibited by Motion Control Process activity.

35 RECORD IF PLAY
Same as RECORD but only supports “CONDITION 1”. In other words, the MMR must already be Playing.

38 REHEARSE
Switches the Controlled Device into rehearse according to the setting of the TRACK RECORD READY i/f. All conditions applying to the EDIT:RECORD command also apply here.

39 REHEARSE IF PLAY
Same as REHEARSE but only supports “CONDITION 1”. In other words, the MMR must already be Playing.

3C STROBE
Operational only if the TRANSPORT TALLY field “Most Recent Record/Rehearse Activity” is RECORD or REHEARSE, and if the device is already playing (CONDITION 1).
Switches tracks into and out of record or rehearse according to:
(a) “Most Recent Record/Rehearse Activity” is RECORD or REHEARSE
(b) the setting of the TRACK RECORD READY i/f.
EDIT:STROBE will cause record (rehearse) entry on all tracks which are presently in a record ready state, and cause record (rehearse) exit on any currently recording (rehearsing) tracks which are no longer record ready.
LOCAL EDIT COMMANDS
Functionally the same as the normal commands, except will never be transmitted by a CAN Bus master.

1f HYB_LOCAL_EXIT
20 HYB_LOCAL_REC
21 HYB_LOCAL_REC_IF_PLAY
1a HYB_LOCAL_REC_IF_ARMED_PLAY
22 HYB_LOCAL_REH
23 HYB_LOCAL_REH_IF_PLAY
24 HYB_LOCAL_STROBE
1b HYB_LOCAL_REH_IF_ARMED_PLAY

ALL SAFE COMMANDS

40 ALL SAFE ON
Place device in all safe mode, from which no editing can take place. Bitmap TRACK RECORD READY is not cleared on receipt of this command, nor is writing to that field affected by ALL SAFE status. User interface functions should however hide the contents of TRACK RECORD READY while ALL SAFE is on.

41 ALL SAFE OFF
Cancel all safe mode (default).

42 ALL SAFE TOGGLE
Toggles all safe mode.

ONLINE/OFFLINE COMMANDS

50 ONLINE
Initiates chase activity if device is connected to Lynx and/or CAN bus, or if CONTROL MODE is TC Chase or Biphase Chase, etc
If the INTERLOCK MODE i/f calls for a recalc, then the current offset is first recalculated: offset = current position - current master position.

xx ONLINE NO RECALC
Same as ONLINE, except that offset is NEVER re-calculated.

51 OFFLINE
Cancels chase activity. Sets transport offline relative to both the Lynx and CAN buses. Has no other direct effect on MCS, MCP or EDIT states.

52 ONLINE TOGGLE

xx ONLINE TOGGLE NO RECALC
Same as ONLINE TOGGLE, except that offset is NEVER re-calculated.
**TRANSPORT TALLY [-/stat]**

Tallies:

(a) the current "Motion Control State" of the Controlled Device, and specifies its success in achieving that state,
(b) the current "Motion Control Process" of the Controlled Device, and specifies its success at accomplishing that process,
(c) the current Loop command status
(d) actual record and rehearse operations taking place at the Controlled Device.
(e) on/offline status.

**TRANSPORT TALLY**

*ms*

Most recently activated Motion Control State:

- 01 = STOP (default)
- 02 = PLAY
- 03 = REVERSE PLAY
- 04 = FAST FORWARD
- 05 = REWIND
- 06 = SHUTTLE
- 0B = INTERNAL SHUTTLE
- 0C = INTERNAL JOG

*lc*

Most recently activated Loop command:

- 00 = No loop command active (default)
- 20 = LOOP PLAY
- 21 = LOOP RECORD
- 22 = LOOP REHEARSE
- 23 = LOOP C-LOOP
- xx = LOOP PREROLL

xed

Most recent Edit Activity

- 30 = EXIT (default)
- 34 = RECORD
- 38 = REHEARSE
- 3C = ALL SAFE ON

ss

MCS, Online and Idle Status: rsssxnxit

- t = MCS transition in progress
- i = Idle
- x = Idle transition in progress
- n = Online

**sss** = Encoded actual velocity tally:

- 000 = No speed data
- 001 = Zero velocity (still)
- 010 = n/a
- 011 = Between zero and playspeed
- 100 = Playspeed
- 101 = Between playspeed and max wind velocity
- 110 = n/a
- 111 = Maximum wind velocity

*r* = Reverse (sign of current velocity)

**ps**

MCP Status: m01rdsksr

- p = Parked (chasing) or Locate Complete (LOCATE)
- s = Lock Servo Active (chasing or resolved PLAY)
- k = Locked (chasing or resolved PLAY)
- d = Locate with Deferred Play pending
- r = Locate with Deferred Reverse Play pending
- l = Locate MCP active
m = Lock mode on (will attempt to lock while playing)

es Edit Status: n000000r
r = True record/rehearse (OR of TRACK RECORD STATUS bits)
n = Not ready (NOR of TRACK RECORD READY bits)

**VELOCITY COMMAND [cmd/-]**
Sets the desired velocity for a subsequent MCS:SHUTTLE command. May also be used to change velocity while in the SHUTTLE mode. Velocity is reset to zero by any MCS command other than SHUTTLE. Not used by INTERNAL SHUTTLE or INTERNAL JOG commands.

xx VELOCITY COMMAND
v1 v2 Standard Velocity Specification

**TRANSPORT LOCATE MACRO [cmd/-]**
Quick locate macro's replace timecode field manipulation.

xx TRANSPORT LOCATE MACRO
<tc> Token of timecode field containing locate target.
Valid fields are:
- LYNX SYNC POINT 0x06
- MEMORY 0x09
- IN POINT 0x0b
- OUT POINT 0xc
- PRE ROLL 0xd  [In – preroll]
- POST ROLL 0xe  [Out + postroll]
- START POINT 0xf
- END POINT 0x10
- LOOP START 0x11
- LOOP END 0x12
- NEXT EDIT 0x13
- PREVIOUS EDIT 0x14
- FILM START LIMIT 0x17
- FILM END LIMIT 0x18

<mem> Memory number (if cHyb_Memory)

---

**Track Controls**

**4E TRACK RECORD STATUS [-/stat]**
Contains bitmap of the tracks that are currently recording [or rehearsing]. Whether recording or rehearsing is tallied by the TRANSPORT TALLY Information Field.
In all cases, the appropriate bit is set to 1 if the track is recording [rehearsing]. Unused bits must be zero.
The Controlled Device need transmit only as many bytes of this response as are required. Tracks not included in a Status transmission will be assumed not to be recording [rehearsing]. A message byte count of 01 (dataLen = 0) may be used if no tracks are recording [rehearsing].

4E TRACK RECORD STATUS
r0 r1 r2 .. Standard Track Bitmap (see Section 3).
**4F**  **TRACK RECORD READY** [cmd/stat]  
A “track” is moved into a “record ready” state when its bit is set to 1 in this track bitmap.  
Upon receipt of the next EDIT:RECORD or EDIT:REHEARSE command, tracks which are "record ready" will enter record [or rehearse].  
Changing this Information Field will not in itself cause tracks to enter or to exit record [or rehearse], if the device is already recording [rehearsing].  
When read as Status, the Controlled Device need transmit only as many bytes as are required. Tracks not included in a Status transmission will be assumed not to be in a TRACK RECORD READY state. A message byte count of 01 (dataLen = 0) may be used if no tracks are in a ready state.  
When written to, tracks not included in the transmission will be set to the not ready state. A message byte count of 01 (dataLen = 0) may be used if all tracks are to be disabled.  

```
4F TRACK RECORD READY
r0 r1 r2 . . Standard Track Bitmap (see Section 3).
```

**53**  **TRACK INPUT MONITOR** [cmd/stat]  
Selects individual tracks that will monitor Input signals at their respective Outputs.  
When read as a Response, the Controlled Device need transmit only as many bytes of TRACK INPUT MONITOR as are required. Tracks not included in a Response transmission will be assumed not to be selected for individual Input monitoring. A message byte count of 01 (dataLen = 0) may be used if no tracks are individually selected.  
When written to by a WRITE command, tracks not included in the transmission will have their individual TRACK INPUT MONITOR bits reset to zero. A message byte count of 01 (dataLen = 0) may be used if all tracks are to be reset.  

```
53 TRACK INPUT MONITOR
r0 r1 r2 . . Standard Track Bitmap (see Section 3).
```

**xx**  **TRACK INPUT STATUS** [ - /stat]  
Tallies the actual input state of each channel, merging the effects of Record monitor switching with the TRACK INPUT MONITOR selections.  
The Controlled Device need transmit only as many bytes of TRACK INPUT STATUS as are required. Tracks not included in a Response transmission will be assumed not to be in Input monitor mode. A message byte count of 01 (dataLen = 0) may be used if no tracks are in input.  

```
xx TRACK INPUT STATUS
r0 r1 r2 . . Standard Track Bitmap (see Section 3).
```

**xx**  **TRACK CUE MONITOR** [cmd/stat]  
Selects tracks to be monitored by the local Cue/Headphone Monitor.  
When read as a Response, the Controlled Device need transmit only as many bytes of TRACK CUE MONITOR as are required. Tracks not included in a Response transmission will be assumed not to be selected for monitoring. A message byte count of 01 (dataLen = 0) may be used if no tracks are individually selected.  
When written to by a WRITE command, tracks not included in the transmission will have their individual TRACK CUE MONITOR bits reset to zero. A message byte count of 01 (dataLen = 0) may be used if all tracks are to be reset.  

```
xx TRACK CUE MONITOR
r0 r1 r2 . . Standard Track Bitmap (see Section 3).
```
**TRACK SLIP SELECT**  \[cmd/stat\]
Selects tracks which will be affected by subsequent TRACK SLIP DELTA commands.

```
xx TRACK SLIP SELECT
r0 r1 r2 .. Standard Track Bitmap (see Section 3).
```

**TRACK SELECT COMMAND**  \[cmd/ - \]
Individual track select. Works in conjunction with the track bitmap commands and status.

```
xx TRACK SELECT COMMAND
tk Track number (0~7 for MMR-8)
ty Type (use token enum’s):
   xx = TRACK RECORD READY
   xx = TRACK INPUT MONITOR
   xx = TRACK CUE MONITOR
   xx = TRACK SLIP SELECT
   xx = TRACK NEXT/PREV SELECT
nf Track Off/On:
   00 = Off
   01 = On
   02 = Toggle
```

**TRACK NEXT/PREV SELECT**  \[cmd/stat\]
Selects tracks which will be used for calculation by subsequent NEXT EDIT, PREVIOUS EDIT, EDIT and EDIT SLIP DELTA COMMAND commands. Only the specified tracks will be considered for the calculation.

```
xx TRACK NEXT/PREV SELECT
r0 r1 r2 .. Standard Track Bitmap (see Section 3).
```

**TRACK RECORDABLE**  \[-/stat\]
Indicates which tracks are available for recording.

```
xx TRACK RECORDABLE
r0 r1 r2 .. Standard Track Bitmap (see Section 3).
```

**TRACK SLIP COMMIT**  \[cmd/-\]
Moves selected slipped tracks to their slipped positions and clears the slip registers. If the selected track is not slipped then no action takes place.

```
xx TRACK SLIP COMMIT
<trk> Track number (0xff = all tracks)
```
**Disk/Backup/Tracks/Editing**

**xx DEVICE TALLY  [ - /stat]**

** xx**

DEVICE TALLY

<num>  
Number of physical devices attached (typically SCSI devices)

**xx DISK COMMAND  [cmd/ - ]**

** xx**

DISK COMMAND

<cmd>  
Command:

00 = Mount
Mount media on all drives.
(Ignore "Device number" and "Partition")

01 = Unmount
Unmount all mounted media. Removeable media devices eject media (cassette or disk etc.) from the transport mechanism.
(Ignore "Device number" and "Partition")

02 = Format
Formats the selected device.

03 = Low level format
Low-level formats the selected device.
(Ignore "Partition")

04 = Cleanup

<dev>  
Device number

<par>  
Partition

**xx DISK STATUS  [ - /stat]**

** xx**

DISK STATUS

<cmd>  
Command in progress:

00 = Mount

01 = Unmount

02 = Format

03 = Low level format

04 = Cleanup

0xff = None (default)

<dev>  
Command device number

<par>  
Command device partition

<pc>  
Previous command

<pd>  
Previous command device number

<pp>  
Previous command device partition

<pr>  
Previous command result:

Mount: Number of volumes mounted
Unmount: Number of volumes unmounted
Format: 00=failure; 01=succes
Low level format: 00=failure; 01=succes n/u??
Cleanup: 00=nothing to clean; 01=succes

<num>  
Number of volumes currently mounted
xx  SCSI DEVICES MOUNTED  [- /stat]

xx  SCSI DEVICES MOUNTED
<msb>  Msb of 16-bit Bitmap of devices mounted:
       0 = Unmounted
       1 = Mounted
<lsb>  Lsb of 16-bit Bitmap

xx  RECORD DISK SELECT  [cmd/stat]
Selects disk, per track, on which to record new tracks.

xx  RECORD DISK SELECT
<trk>  Track number:  0xff = all tracks (default)
<dev>  Device number  00 thru 06
<par>  Partition

xx  RECORD DISK CURRENT  [- /stat]
Disk, per track, upon which recording will currently take place.

xx  RECORD DISK CURRENT
<trk>  Track number
<dev>  Device number  00 thru 06
<par>  Partition

xx  EDIT  [cmd/ - ]
Note: all editing is performed relative to the IN POINT and OUT POINT fields.

xx  EDIT
<code>  Edit code:
       00 = Cut
       01 = Copy
       02 = Clear
       03 = Paste
       04 = Insert
       05 = Open
       06 = Undo
       07 = Redo
EDIT TALLY [ - /stat]
Echoed upon completion of each and every edit operation.

EDIT TALLY
<code>
Edit code for most recent edit:

00 = Cut
01 = Copy
02 = Clear
03 = Paste
04 = Insert
05 = Open
06 = Undo
07 = Redo
08 = Slip Delta

(status only; see EDIT SLIP DELTA COMMAND)

<undo>
Current UNDO level
Only valid for Undo and Redo

EDIT EVENT CAPTURE [cmd/ - ]
Moves into the IN POINT and OUT POINT registers the current event start and end times from the lowest track number selected for editing. Error if no track selected.
Sample accuracy is maintained.

EDIT EVENT CAPTURE

EDIT SYNC MODE [cmd/stat]
The default edit method is to CUT/PASTE/etc using the IN POINT as the start of the marked area and as the sync point i.e. the start of of copied area may be inserted at the current IN POINT.
The alternate method uses the “play head” (current position) as sync point. The position of the play head relative to the IN POINT is recorded by the COPY/CUT/etc commands. During a PASTE/INSERT/etc operation, that position in the copied material is aligned with the play head position at the time of the PASTE/INSERT/etc.

EDIT SYNC MODE
<br>
Mode:
00 = Sync at IN POINT (default)
01 = Sync at “play head”

System

EXTERNAL ERROR CLEAR [cmd/ - ]
Local error clear from external device.

ERROR CLEAR
xx  **SYSTEM TIME**  [cmd/stat]
Set/read system time. Format is a 32-bit number representing the seconds elapsed since midnight (00:00:00), January 1, 1970

xx  **SYSTEM TIME**
<d3 d2 d1 d0>  32-bit time_t value, msb first

xx  **USER LOAD/SAVE**  [cmd/ -]
Load and/or save User memories to disk [NOT IMPLEMENTED]

xx  **USER LOAD/SAVE**
<sc>
Command:
00 = Load all user settings from floppy.
01 = Save all user settings to floppy.

xx  **USER STORE**  [cmd/ -]
Store the current settings to a User memory.

xx  **USER STORE**
<un>
User number:
00 thru 09 = Save current settings to User 1 thru User 10

xx  **USER MEMORY**  [cmd/ -]
Recalls current settings from a User memory.

xx  **USER MEMORY**
<un>
User number:
00 thru 09 = User 1 thru User 10
0xfe = Previous
0xff = Factory default

xx  **MACHINE TYPE**  [- /stat]
Identifies the attached machine or remote control. Range is 0 thru 0x7f.

xx  **MACHINE TYPE**
<tt>
Type:
00 = MMR-8
01 = MMP-16
02 = Remote Lite

xx  **SERIAL NUMBER**  [ -/stat]
Integer version of ASCII manufacturing serial number of device, as stamped on rear panel (typically also saved on disk). Currently limited to 65535 units, but may be expanded by creating additional MACHINE TYPE's.

xx  **SERIAL NUMBER**
<ms>  Msb of 16-bit number
<ls>  Lsb
**SILICON SERIAL NUMBER**  [ - /stat]  
Hidden serial number from silicon identifier.

```
SILICON SERIAL NUMBER
<s0>  Msb of 48-bit identifier
<s1>  .
<s2>  .
<s3>  .
<s4>  .
<s5>  Lsb of 48-bit identifier
```

**STATUS REQUEST**  [cmd/ - ]
Requests that the device respond with the contents of the status field indicated. Erroneous requests will result in the field STATUS REQUEST ERROR being returned.
This command is to be used at specific external interface ports, and is not supported internally.

```
STATUS REQUEST
<i/f>  Status field token.
<indx> Possible timecode, track or other index.
```

**STATUS REQUEST ERROR**  [ - /stat]  
Contains status field token of most recently erroneous STATUS REQUEST command.
This status field is to be used at specific external interface ports, and is not supported internally.

```
STATUS REQUEST ERROR
<i/f>  Status field token.
<eb>   Error bitmask: 000000mk
       k = Bad token
       m = Internal message too long for Sony protocol
```

**Remote**

**REMOTE BUS SELECT COMMAND**  [cmd/stat]  
Requests a specific CAN bus for the attached remote control. REMOTE BUS SELECT COMMAND status is forwarded to the CAN bus re-poll mechanism. A fresh CAN BUS POLL TALLY status should be the normal outcome.

```
REMOTE BUS SELECT COMMAND
<bus>  Number
       0~3 = Bus number (default = 0)
```
Remote Meters

**REMOTE METER SOURCE**  [cmd/stat]
Determines the source of remote meter data.

```
REMOTE METER SOURCE
<src>
Data Source:
 00 = CAN Bus (default)
 01 = Local
```

Setup: System Controls and References

**CONTROL MODE COMMAND**  [cmd/stat]
Requests overall operating mode of the device. Changes in this field cause CAN BUS COMMAND to be transmitted to the CAN Bus Controller for Bus Master arbitration.

```
CONTROL MODE COMMAND
<md>
Mode:
 00 = Standalone (default)
 01 = TC Chase
 02 = Biphase Chase
 03 = n/u
 04 = Serial Transport
 05 = Editor
 06 = Varispeed
```

**CONTROL MODE TALLY**  [- /stat]
Tallies overall operating mode of the device. An automatic BUS OFF command will be issued for the LYNX BUS whenever this field is changed. CONTROL MODE TALLY may differ from CONTROL MODE COMMAND when CAN bus conditions dictate that the device operate temporarily in Standalone mode.

```
CONTROL MODE
<md>
Mode:
 00 = Standalone (default)
 01 = TC Chase
 02 = Biphase Chase
 03 = n/u
 04 = Serial Transport
 05 = Editor
 06 = Varispeed
```

**FRAME REFERENCE COMMAND**  [cmd/stat]

```
FRAME REFERENCE COMMAND
<fr>
Select:
 00 = Auto (default)
 01 = Video
```
xx FRAME REFERENCE TALLY  [-/stat]

xx FRAME REFERENCE TALLY
<fr> Tally: s00rrrr
rrrr = Frame reference:
1 = Video
2 = Sample clock (default)
3 = Time code reader
4 = n/u
5 = Biphase reader
6 = Lynx bus
s = Status:
0 = Missing
1 = Good (internal frame lock)

xx SAMPLE CLOCK REFERENCE COMMAND  [cmd/stat]

xx SAMPLE CLOCK REFERENCE COMMAND
<ref> Reference select:
00 = Frame reference (default)
01 = AES/EBU
02 = External

xx SAMPLE CLOCK REFERENCE TALLY  [-/stat]

xx SAMPLE CLOCK REFERENCE TALLY
<ref> Reference tally: s00rrrr
rrrr = Sample clock reference
0 = Frame reference
1 = AES/EBU
2 = External
3 = CAN bus
4 = Internal (default)
s = Status:
0 = Missing
1 = Good (internal clocks locked)
40  FRAME RATE AND TIMECODE TYPE COMMAND [cmd/stat]

40 FRAME RATE AND TIMECODE TYPE COMMAND

rt Rate/Type specification: \textit{tr000fff}

\( t \) = Timecode type change only [command only]
\( r \) = Rate change only [command only]
\( fff \) = Frame rate and timecode type:

<table>
<thead>
<tr>
<th>Rate</th>
<th>Timecode type</th>
</tr>
</thead>
<tbody>
<tr>
<td>0: 30fps,</td>
<td>30 ndf (default)</td>
</tr>
<tr>
<td>1: 30fps,</td>
<td>30 df</td>
</tr>
<tr>
<td>2: 25fps,</td>
<td>25</td>
</tr>
<tr>
<td>3: 24fps,</td>
<td>24</td>
</tr>
<tr>
<td>4: 29.97fps,</td>
<td>30 ndf</td>
</tr>
<tr>
<td>5: 29.97fps,</td>
<td>30 df</td>
</tr>
</tbody>
</table>

46  SAMPLE RATE COMMAND [cmd/stat]

46 SAMPLE RATE COMMAND

sr Sample rate code:

\( 00 = 44.056 \text{ kHz} \) // 44100 pulldown
\( 01 = 44.100 \text{ kHz} \) // 44100
\( 02 = 44.144 \text{ kHz} \) // 44100 pulldup
\( 03 = 47.952 \text{ kHz} \) // 48000 pulldown
\( 04 = 48.000 \text{ kHz} \) (default) // 48000
\( 05 = 48.048 \text{ kHz} \) // 48000 pulldup

// Film <-> PAL pullups and pull downs ...
\( 06 = 42.294 \text{ kHz} \) // 44100 * 23.976 / 25
\( 07 = 42.336 \text{ kHz} \) // 44100 * 24 / 25
\( 08 = 45.938 \text{ kHz} \) // 44100 * 25 / 24
\( 09 = 45.983 \text{ kHz} \) // 44100 * 25 / 23.976
\( 0a = 46.034 \text{ kHz} \) // 48000 * 23.976 / 25
\( 0b = 46.080 \text{ kHz} \) // 48000 * 24 / 25
\( 0c = 50.000 \text{ kHz} \) // 48000 * 25 / 24
\( 0d = 50.050 \text{ kHz} \) // 48000 * 25 / 23.976

xx  RATE TALLY [ -/stat]

xx RATE TALLY

\(<rt>\) Frame rate and timecode type specification:

<table>
<thead>
<tr>
<th>Rate</th>
<th>Timecode type</th>
</tr>
</thead>
<tbody>
<tr>
<td>00: 30fps,</td>
<td>30 ndf (default)</td>
</tr>
<tr>
<td>01: 30fps,</td>
<td>30 df</td>
</tr>
<tr>
<td>02: 25fps,</td>
<td>25</td>
</tr>
<tr>
<td>03: 24fps,</td>
<td>24</td>
</tr>
<tr>
<td>04: 29.97fps,</td>
<td>30 ndf</td>
</tr>
<tr>
<td>05: 29.97fps,</td>
<td>30 df</td>
</tr>
</tbody>
</table>
Nominal sample rate:
00 = 44.056 kHz
01 = 44.100 kHz
02 = 44.144 kHz
03 = 47.952 kHz
04 = 48.000 kHz (default)
05 = 48.048 kHz
06 = 42.294 kHz
07 = 42.336 kHz
08 = 45.938 kHz
09 = 45.983 kHz
0a = 46.034 kHz
0b = 46.080 kHz
0c = 50.000 kHz
0d = 50.050 kHz

Sample rate to field ratio: bits 8~15 of 16-bit numerator (0 if no data)
Sample rate to field ratio: bits 0~7 of 16-bit numerator (0 if no data)
Sample rate to field ratio: 8-bit denominator
(Default n/r = 48000/60)

MASTER TIMECODE TYPE TALLY  [-/stat]
Used by MASTER TIME CODE and REQUESTED OFFSET fields. Always tracks the RATE TALLY
timecode type with the exception that drop frame / non-drop frame variances are permitted.

MASTER TIMECODE TYPE TALLY
Timecode type specification:
00:  30 ndf (default)
01:  30 df
02:  25
03:  24

VARISPEED RATE  [cmd/stat]
Speed data when Control Mode = Varispeed only.

VARISPEED RATE
Msb of 16-bit signed speed delta in .01% steps
Range: +1250 thru -1250 decimal
0000 = unadjusted normal playspeed
1250 = playspeed plus 12.5%
etc
Lsb
 Lynx Bus Command [cmd/stat]
Establishes the desired connection to the Lynx bus when the device is ONLINE.
If at the time a Master command is received the device cannot become a master, then master status will not be reflected in the Lynx Bus TALLY, but will remain active here.
Changes in this field cause CAN BUS COMMAND to be transmitted to the CAN Bus Controller for Bus Master arbitration (we need to be the CAN Bus Master if we are slaving to the Lynx Bus).

 Lynx Bus Command
<cmd>
Command:
  00 = Off (disconnected from bus)
  01 = Slave
  02 = Master

 Lynx Bus Tally [ -/stat]
 Lynx Bus Tally
<st>
Status: rams000c
  c = comm’s ok
  s = slave
  m = master
  a = standalone
  r = remote control

 Lynx Bus Address [cmd/stat]
 Lynx Bus Address
<addr>
Address:
  0~7F (default = 01)

 Lynx Bus V500 Sal Mode [cmd/stat]
Determines bus mode for standalone master.
Extra timecode status bits are enabled in the Off state (V600/700 mode).
 Lynx Bus V500 Sal Mode
<md>
Mode:
  00 = Off (V700/V700 mode)
  01 = On (V500 mode)
CAN BUS COMMAND  [cmd/stat]
Establishes the desired connection to the MMR (CAN) bus when the device is ONLINE. If at the time a Master command is received the device cannot become a master (decided by the CAN Bus Controller), then master status will not be reflected in the CAN BUS TALLY, but will remain active here. CAN BUS COMMAND status is re-transmitted to the CAN Bus Controller for Bus Master arbitration. It is also transmitted on the CAN Bus following changes to CONTROL MODE COMMAND or LYNX BUS COMMAND, as these commands may indicate chase to an external device, in which case the local device needs to be Bus Master on the CAN Bus. The Bus Controller will issue CAN BUS MASTER ASSIGN messages based on this data.

<cmd>
Command:
00 = Off (disconnected from bus)
01 = Slave (default)
02 = Master

CAN BUS TALLY  [-/stat]
Tallies machine's current connectivity to the CAN bus.

<st>
Status:
00msgxrc
  c = comm's ok
  r = surrogate master (see CAN BUS MASTER ASSIGN)
  x = remote group slave
  g = remote group master
  s = bus slave
  m = bus master

CAN BUS IDENT COMMAND  [cmd/stat]
Identification number desired for the machine.

<id>
Ident:
00~63 [Decimal 0~99]
7f = Auto (default)

BUS SELECT COMMAND  [cmd/stat]
Requests a specific CAN and Biphase bus. BUS SELECT COMMAND status is forwarded to the CAN bus re-poll mechanism. A fresh CAN BUS POLL TALLY status should be the normal outcome.

<bus>
Number
0~3 = Bus number (default = 0)
**Setup: Input/Output**

xx **AES/EBU REFERENCE CHANNEL**  [cmd/stat]

  xx **AES/EBU REFERENCE CHANNEL**
  <chan> Input channel number to be used as AES/EBU sample clock reference
  (default = 0)

xx **AES/EBU INPUT RATE AUTO**  [cmd/stat]

  xx **AES/EBU INPUT RATE AUTO**
  <re> Rate control:
  00 = Fixed: use rate set by user (default)
  01 = Auto: use the encoded rate, if available

xx **AES/EBU RATE CONVERSION CHANNEL**  [- /stat]

Whether rate conversion is active or not is determined by the RECORD INPUT SOURCE field. The channel(s) to be converted are determined by the most recent TRACK RECORD READY or TRACK INPUT MONITOR selections. Those selections are in turn restricted to 2 adjacent active tracks at any one time.

  xx **AES/EBU RATE CONVERSION CHANNEL**
  <chan> Apply digital rate conversion to this digital input channel.
  0xff = conversion Off

xx **AES/EBU RATE CONVERSION ALGORITHM**  [cmd/stat]

  xx **AES/EBU RATE CONVERSION ALGORITHM**
  <algo> Algorithm:
  0x00 = Fast (default)
  0x01 = Slow

xx **EXTERNAL DIGITAL INPUT DELAY**  [cmd/stat]

Delay due to converter.

  xx **EXTERNAL DIGITAL INPUT DELAY**
  <trk> Track number: 0xff = all tracks (default)
  <dly> Delay in samples:
  00 = Use internal analog input delay (default)
  01~ff = Delay in samples

xx **EXTERNAL DIGITAL OUTPUT DELAY**  [cmd/stat]

Delay due to converter.

  xx **EXTERNAL DIGITAL OUTPUT DELAY**
  <trk> Track number: 0xff = all tracks (default)
  <dly> Delay in samples:
  00 = Use internal analog output delay (default)
  01~ff = Delay in samples
xx AES/EBU INPUT STATUS  [ - /stat]
Keep one per track.

XX AES/EBU INPUT STATUS
<trk> Track number (MMR: 0~7) (also 0xff = All, for initialization only)
<stat> Status:  pe0000rr
  rr = Sample rate indication:
    00 = Unspecified (default)
    01 = 48000
    02 = 44100
    03 = 32000
  e = Emphasis flag:
    0 = Off (default)
    1 = On
  p = Professional flag
    0 = Consumer
    1 = Professional (default)

Setup: Control

xx LOOP MODE  [cmd/stat]
Loop to repeat or execute just once.

XX LOOP MODE
<cmd> Mode:
  00 = Repeat (default)
  01 = Once plus re-cue
  02 = Once plus stop

xx LOOP RECORD MODE  [cmd/stat]
Loop to always record, once requested, or just the first time.

XX LOOP RECORD MODE
<rm> Record mode:
  00 = Record at each iteration of the loop (default)
  01 = Record once
  02 = Record at each iteration of the loop, plus
       auto-unload recorded tracks at end of loop.

xx NEXT/PREV MODE  [cmd/stat]
Establishes whether the NEXT EDIT and PREVIOUS EDIT commands calculate the beginning of the
next/previous Event, based on the current event list, or calculate the beginning of the next/prev user-established
Cue, which may cross multiple events.

XX NEXT/PREV MODE
<cmd> Mode
  00 = Event (default)
  01 = Cue
xx RECORD KEY MODE  [cmd/stat]

xx RECORD KEY MODE
<md>
Mode
 00 = Two key:  Record + Play (default)
 01 = Single key:  Record

xx REHEARSE KEY MODE  [cmd/stat]

xx REHEARSE KEY MODE
<md>
Mode
 00 = Two key:  Rehearse + Play (default)
 01 = Single key:  Rehearse

Setup: Audio

51 RECORD MONITOR  [cmd/stat]
Selects the conditions under which track Inputs are to be monitored at their respective Outputs during Record operations.

51 RECORD MONITOR
<src>
Mode:
 00 = Record Only
 01 = Record or Non-Play (default)
 02 = Record or Record-Ready

"Record Only":
Tracks to monitor Input only when recording. Upon the conclusion of a record operation, revert back to Playback.

"Record or Non-Play":
Tracks to monitor Input when recording. Upon the conclusion of a record operation, revert back to Playback. In addition, all Record Ready tracks will monitor Input when not in PLAY mode.

"Record or Record-Ready":
Tracks to monitor Input at all times while Recording or set to Record Ready.

NOTES:
1. Actual monitoring may be overridden by the TRACK INPUT MONITOR Information Field.
2. An Input tally is returned in TRACK INPUT STATUS.

xx RECORD INPUT SOURCE  [cmd/stat]

xx RECORD INPUT SOURCE
<src>
Source:
 00 = Analog (default)
 01 = AES/EBU Digital
 02 = Rate converter
**xx** RECORD FILE TYPE  [cmd/stat]

**xx** RECORD FILE TYPE

<ft>

File type:

00 = DAW-80, 16-bit
01 = DAW-80, 24-bit
02 = SD2/ProTools, 16-bit
03 = SD2/ProTools, 24-bit

**xx** RECORD DESTRUCTIVE  [cmd/stat]

Enable/disable destructive record mode.

**xx** RECORD DESTRUCTIVE

<md>

Mode:

00 = Off (default)
02 = Tape mode

**xx** CROSSFADE LENGTH IN SAMPLES  [cmd/stat]

Length of internally generated crossfades, as well as the length of crossfade used for output switching.

**xx** CROSSFADE LENGTH IN SAMPLES

<.....>

Standard Sample Number Specification

**xx** GAPLESS PUNCHOUT  [cmd/stat]

Determines whether or not underlying tracks are read while recording is taking place. "Off" choice is not available in Tape Mode.

**xx** GAPLESS PUNCHOUT

<gp>

00 = Off, 01 = On (default)

**xx** DAILIES MODE  [cmd/stat]

When enabled, if recording/rehearsing has been initiated while chasing an external source, then the unit will re-initiate record/rehearse following a synchronization dropout.

**xx** DAILIES MODE

<md>

00 = Off (default), 01 = On

**Setup: Meters & Calibration**

**xx** METER OPERATING LEVEL  [cmd/stat]

**xx** METER OPERATING LEVEL

<op>

Range = 15 thru 24:

15 = meter 0 level is 15dB below clipping
20 = meter 0 level is 20dB below clipping (default)
24 = meter 0 level is 24dB below clipping
xx METER CALIBRATE [cmd/stat]

xx METER CALIBRATE
<md> 00 = Off (default), 01 = On

xx METER PLAYBACK CLIP [cmd/stat]
When off, clipped status is only displayed during record mode (per track).

xx METER PLAYBACK CLIP
<md> 00 = Off (default), 01 = On

xx TONE ENABLE [cmd/stat]
Enables/disables a 1kHz tone, level = meter 0dB, at all audio outputs.

xx TONE ENABLE
<md> 00 = Off, 01 = On

Setup: MIDI

4E MIDI DEVICE ID [cmd/stat but not writeable from MIDI port!]

4E MIDI DEVICE ID
id Currently assigned MIDI device ID 00 thru 7E
(7F is reserved as the "all-call" device id)

xx MIDI COMM TALLY [- /stat]

xx MIDI COMM TALLY
<st> Status: 0000000c
c = comm’s ok

Setup: Lynx Transport

xx FILM TACH AND DIRECTION [cmd/stat]

xx FILM TACH AND DIRECTION
<mode> Mode:
   00 = Off (Biphase)
   01 = On: Tach and Direction
   02 = On: Tach and Inverted Direction
**FILM FRAME RATE**  [cmd/stat]
Biphase frame rate. Works in combination with FILM PULSE RATE to establish the actual biphase frequency.

```
xx FILM FRAME RATE
<fr>
Frame Rate:
00 = 30fps
02 = 25fps
03 = 24fps
```

**FILM PULSE RATE**  [cmd/stat]
Determines nominal biphase frequency depending on the FILM FRAME RATE setting. (Was “transport” selection in Lynx terminology)

```
xx FILM PULSE RATE
<pr>
Pulse Rate (for FILM FRAME RATE = 24/25/30):
00 = 48/50/60 Hz  2 pulses per frame
01 = 96/100/120 Hz  4 ppf
02 = 240/250/300 Hz  10 ppf
03 = 480/500/600 Hz  20 ppf
04 = 600/625/750 Hz  25 ppf
05 = 1200/1250/1500 Hz [input only]  50 ppf
06 = 2400/2500/3000 Hz [input only]  100 ppf
```

**READER CODE SOURCE TALLY**  [- /stat]

```
xx READER CODE SOURCE TALLY
<src>
Source:
00 = invalid (code absent)
01 = code ok
```

**SERIAL TRAN COMM TALLY**  [- /stat]

```
xx SERIAL TRAN COMM TALLY
<st>
Status: 00000000c
   c = comm’s ok
```
Setup: Parallel Remote

xx PARALLEL RECORD MODE [cmd/stat]

xx PARALLEL RECORD MODE

<md> Mode:

00 = Pulse (default)
01 = Pulse plus track select transition to selected state implies an EDIT:RECORD command.
02 = Hold
03 = Hold plus track select transition to selected state implies an EDIT:RECORD command.
04 = Pulse to Punch In, pulse on "Input" pin to Punch Out, plus track select transition to selected state implies an EDIT:RECORD command.

Setup: Editor Interface

4C EDITOR EDIT FIELD [cmd/stat]

4C EDITOR EDIT FIELD

fd Field:

00 = Auto: edit field depends upon timing of received edit (record in/out) command. (default)
01 = Field 1
02 = Field 2

4D EDITOR DEVICE TYPE [cmd/stat]

4D EDITOR DEVICE TYPE

dt Device Type code:

00 = Responds as itself [Device Type = XX XX] (default)
01 = Responds as a Sony PCM-7030 [Device Type = 70 00]
02 = Responds as a Sony BVU-950 [Device Type = 10 1C]
03 = Responds as a Sony PCM-3324S [Device Type = 60 03]

xx EDITOR TRACK MAPPING [cmd/stat]

Establishes relationship between protocol track selects and actual track arming.

xx EDITOR TRACK MAPPING

<map> Track map method:

00 = Use Sony digital tracks D1 thru Dn explicitly (default)
01 = Use Sony analog tracks A1 thru A4
02 = Local track select: edit if any Sony track Vid,A1~4 armed
03 = Local track select: edit if any Sony track A1~4 armed
04 = Local track select: edit if Sony track A1 armed
05 = Local track select: edit if Sony track A2 armed
06 = Local track select: edit if Sony track A3 armed
07 = Local track select: edit if Sony track A4 armed
5D EDITOR AUTO EE ENABLE [cmd/stat]

5D ee

EDITOR AUTO EE ENABLE
Switch:
00 = Off (default)
01 = On: switch to EE (All Input) when stopped.

xx EDITOR CHASE SOURCE [cmd/stat]
Determines source to follow when CHASE command received. When disabled, the device will not respond to P2 CHASE or OFFSET commands, and in addition will ignore non-editing transport commands while in local chase modes.

xx <src>

EDITOR CHASE SOURCE
Source:
00 = Disabled
01 = TC Chase (default)
02 = Biphas Chase